

REMARKS

SPECIFICATION:

A typographical error comprising an extra "the" has been deleted at page 3, line 15.

CLAIMS:

Claims 1-49 comprise the case.

I) 35 U.S.C. 102, Claims 1-38:

Claims 1-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogier (US Patent Publication No. 2003/0095504 A1).

A) Claims 1, 10, 20 and 30:

With respect to Claims 1, 10, 20 and 30, the Examiner states that Ogier discloses a "plurality of said processor nodes each having information of relative locations of said processor nodes on said multi-drop bus network ***".

The Examiner further states that Ogier discloses "said plurality of processor nodes independently testing access to at least one other of said processor nodes on said multi-drop network; upon *** detecting a failure to access at least one of said other said processor nodes, said failure detecting processor node determining, from said information of relative locations, the processor node having failed access which is closest to said failure detecting processor node; and said failure detecting processor node storing an identification of said closest processor node having failed access ***".

Still further, the Examiner states that Ogier defines a "multi-drop bus network" as "'Protocols for establishing link layer links include Ethernet, PPP...' As is known in the art Ethernet 10Base-2 and 10Base-5 are bus networks."

(1) With respect to the issue of a "multi-drop network", as pointed out by the accompanying 2D Declaration under Rule 1.132, Ogier "describes 'A protocol for discovering a new neighbor node and detecting the loss of an existing neighbor node in a network ***.' *** Ogier states that the protocol 'enables nodes in a mobile ad hoc network or in an internet to quickly detect neighboring nodes with which the nodes have a direct and symmetric link ***'. *** This is a point-to-point relationship, and is not a multi-drop network."

"Further, the reference to 'Ethernet' is with respect to protocol and is not directed to a 'twin lead Ethernet network' of the multi-drop network of the '705 Application." (emphasis added).

(2) With respect to the issue of "relative locations", as pointed out by the accompanying 2D Declaration under Rule 1.132, "Ogier only detects the loss or presence of the 'neighbor' nodes and has no awareness of relative locations."

"'In general, the neighbor discovery protocol dynamically establishes bidirectional links and detects bi-directional link failures through the periodic transmission of HELLO messages.' ***."

"'Each node 18 maintains a neighbor table, which has an entry for each known neighbor node and stores state information for that neighbor node.'"

"There is no relative location information associated with either the HELLO message or the neighbor table, just identifiers of their identity and states."

"Further, the discussion by Ogier of the tracking of 'neighbors' makes clear that no location or relative location information would be of use." (emphasis added).

(3) Hence, Applicants respectfully submit that Ogier discovers a new neighbor node and detects the loss of an existing neighbor node in a dynamic point-to-point network, and, without location or relative location information with respect to a multi-drop bus network, Ogier is unable to determine the closest processor node having failed access, such that Ogier is unable to isolate failures in the multi-drop bus network, and has no interest in doing so, thereby teaching away from Applicants' invention. Therefore, Applicants' Claims 1, 10, 20 and 30 are submitted to patentably define over Ogier.

For example, Claim 1 recites "In a distributed processing system comprising processor nodes coupled by a multi-drop bus network, a method for isolating failures, comprising the steps of:

"at least a plurality of said processor nodes each having information of relative locations of said processor nodes on said multi-drop bus network;

"said plurality of processor nodes each independently testing access to at least one other of said processor nodes on said multi-drop bus network;

"upon said access testing by any of said plurality of testing processor nodes detecting a failure to access at least one of said other said processor nodes, said failure detecting processor node determining, from said information of relative locations, the processor node having failed access which is closest to said failure detecting processor node; and

"said failure detecting processor node storing an identification of said closest processor node having failed access." (emphasis added).

Applicants therefore respectfully submit that Applicants' Claims 1, 10, 20 and 30 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

B) Claims 2, 11, 21 and 31:

The Examiner states that Ogier discloses posting an identifier of the "closest processor node having failed access at an associated error indicator local to said failure detecting processor node ***".

Applicants respectfully submit that, as discussed above, Ogier discovers a new neighbor node and detects the loss of an existing neighbor node in a dynamic point-to-point network, and is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention. Hence, Applicants respectfully submit that Claims 2, 11, 21 and 31 patentably define over Ogier.

For example, Claim 2 recites "posting an identifier of said closest processor node having failed access at an associated error indicator local to said failure detecting processor node." (emphasis added). Applicants therefore respectfully submit that Applicants' Claims 2, 11, 21 and 31 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

C) Claims 3, 12, 22 and 32:

The Examiner states that Ogier "discloses upon said access testing by any of said plurality of testing processor nodes detecting a failure to access all of said other processor nodes, said failure detecting processor node posting a special identifier ***."

However, Ogier is actually discussing whether a complete "HELLO" message is received and takes action if one is received, including "If the HELLO message is complete and an entry for a neighbor node B does not exist in the table, the receiving node A creates (step 290) such an entry with state(B) = 'lost'." (page 15, paragraph [0227]).

This is submitted to be unrelated to Applicants' invention of Claims 3, 12, 22 and 32, which recite action taken upon failure to access all other nodes.

For example, Claim 3 recites "upon said access testing by any of said plurality of testing processor nodes detecting a failure to access all of said other processor nodes, said failure detecting processor node posting a special identifier at said associated local error indicator."

Hence, Applicants respectfully submit that Claims 3, 12, 22 and 32 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

D) Claims 4, 13, 23 and 33:

The Examiner states that Ogier "discloses posting an error message representing said identifier to an error log, and subsequently accumulating said posted error messages of said plurality of processor nodes ***".

However, Ogier is actually discussing the "Reduced Overhead Hello Protocol" which, rather than accumulating posted error messages, "is to allow each node *** to quickly detect the neighbor nodes with which that node 18 has a direct and symmetric link ***. The ROHP also detects when a symmetric link to some neighbor no longer exists."

However, the claimed "posted identifier" of Claims 5, 14, 24 and 34, e.g. Claim 5, "said posted identifier", is the posted "identifier of said closest processor node having failed access at an associated error indicator local to said failure detecting processor node" of Claim 2. (emphasis added).

Applicants respectfully submit that, as discussed above, Ogier is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention of Claims 4, 13, 23 and 33, which relate to posting and subsequently accumulating error messages of a plurality of processor nodes.

For example, Claim 4 recites "posting an error message representing said identifier to an error log; and subsequently accumulating said posted error messages of said plurality of processor nodes."

Hence, Applicants respectfully submit that Claims 4, 13, 23 and 33 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

E) Claims 5, 14, 24 and 34:

The Examiner states that Ogier "discloses locking said posted identifier at said error indicator for a predetermined time-out period; and subsequent to expiration of said time-out period, deleting said posted identifier ***."

However, the claimed "posted identifier" of Claims 5, 14, 24 and 34, e.g. Claim 5, "said posted identifier", is the posted "identifier of said closest processor node having failed access at an associated error indicator local to said failure detecting processor node" of Claim 2. (emphasis added).

Applicants respectfully submit that, as discussed above, Ogier is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention. Applicants therefore respectfully submit that Applicants' Claims 5, 14, 24 and 34 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

F) Claims 6, 15, 25 and 35:

The Examiner states that Ogier "discloses locking said posted identifier at said error indicator; and responding to an operator initiated signal, deleting said posted identifier ***."

However, the claimed "posted identifier" of Claims 6, 15, 25 and 35, e.g., Claim 6, "said posted identifier", is the posted "identifier of said closest processor node having failed access at an associated error indicator local to said failure detecting processor node" of Claim 2. (emphasis added).

Applicants respectfully submit that, as discussed above, Ogier is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention. Applicants therefore respectfully submit that Applicants' Claims 6, 15, 25 and 35 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

G) Claims 7, 16, 26 and 36:

The Examiner states that Ogier "discloses locking said posted identifier at said associated local error indicator; and said displaying processor node retesting said access, and, upon absence of an error during a predetermined number of said retests, deleting said posted identifier ***."

However, the claimed "posted identifier" of Claims 7, 16, 26 and 36, e.g., Claim 7, "said posted identifier", is the posted "identifier of said closest processor node having failed access at an associated error indicator local to said failure detecting processor node" of Claim 2. (emphasis added).

Applicants respectfully submit that, as discussed above, Ogier is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention. Applicants therefore respectfully submit that Applicants' Claims 7, 16, 26 and 36 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

H) Claims 8, 17, 27 and 37:

The Examiner states that Ogier (e.g. per claim 8) "discloses *** upon said access failure detecting step detecting access failure of a plurality of said multiple processor nodes at said single drop, said step of determining said processor node having failed access additionally comprises determining, from said relative locations, said single drop having failed access which is closest to said failure detecting processor node, ***." Additionally, the Examiner states that Ogier defines a "multi-drop bus network".

As discussed above, Applicants respectfully submit that, Ogier recites a point-to-point relationship, not a multi-drop network, and detects the loss or presence of the 'neighbor' nodes and has no awareness of relative locations.

Hence Applicants future respectfully submit that, without location or relative location information with respect to a multi-drop network, Ogier is unable to determine the "closest processor node having failed access" or the closest single drop,

and has no interest in doing so, thereby teaching away from Applicants' invention. Therefore, Applicants' Claims 8, 17, 27 and 37 are submitted to patentably define over Ogier. For example, Claim 8 recites "upon said access failure detecting step detecting access failure of a plurality of said multiple processor nodes at said single drop, said step of determining said processor node having failed access additionally comprises determining, from said information of relative locations, said single drop having failed access which is closest to said failure detecting processor node, and selecting one of said multiple processor nodes at said single drop, said failure detecting processor node storing an identification of said selected processor node."

Applicants therefore respectfully submit that Applicants' Claims 8, 17, 27 and 36 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

I) Claims 9, 18, 28 and 38:

The Examiner states that Ogier (e.g. per Claim 9) "discloses one of said multiple processor nodes extending from said single drop of said multi-drop bus network is identified as having a higher priority than other processor nodes extending from said single drop, and wherein said selecting step comprises selecting said multiple processor node having said higher priority ***."

However, as pointed out by the accompanying 2D Declaration under Rule 1.132, Ogier "describes 'A protocol for discovering a new neighbor node and detecting the loss of an existing neighbor node in a network ***.' *** Ogier states that the protocol 'enables nodes in a mobile ad hoc network or in an internet to quickly detect neighboring nodes with which the nodes have a

direct and symmetric link ***'. *** This is a point-to-point relationship, and is not a multi-drop network."

Hence, Applicants respectfully submit that Ogier is unrelated to the multi-drop network of Claims 9, 18, 28 and 38 of Applicants, and sets no priorities since all of its processors of the Ogier network are connected by a multi-path network.

Thus, Applicants respectfully submit that Claims 9, 18, 28 and 38, e.g. Claim 9, "wherein one of said multiple processor nodes extending from said single drop of said multi-drop bus network is identified as having a higher priority than other processor nodes extending from said single drop, and wherein said selecting step comprises selecting said multiple processor node having said higher priority" patentably define over Ogier under 35 U.S.C. 102(e), and Applicants respectfully request allowance thereover.

J) Claims 19 and 29:

The Examiner states that Ogier "discloses wherein said local error indicators comprise character displays of at least one character ***".

However, Ogier is referring to node "HELLO" and "ACK" messages, without any mention of displays. Claims 19 and 29, e.g. Claim 19, "said local error indicators" refers to "a local error indicator *** posting, at said local error indicator associated with said failure detecting processor node, an identifier of said closest processor node having failed access." (emphasis added).

Applicants respectfully submit that, as discussed above, Ogier is unable to determine the closest processor node having failed access, and has no interest in doing so, thereby teaching away from Applicants' invention, and that Ogier fails to post a local indicator at a character display. Applicants therefore respectfully submit that Applicants' Claims 19 and 29 patentably define over Ogier under 35 U.S.C. 102(e), and respectfully request allowance thereover.

III) 35 U.S.C. 103, Claims 39-49:

Claims 39-49 are rejected "under 35 U.S.C. 103(a) as being unpatentable over Ogier et al. in view of Rockwell (USPN 6,204,992).

A) Claim 39:

The Examiner rejects Claim 39 using similar language as with respect to Claims 1, 10, 20 and 30, and states "Ogier fails to explicitly state a robot accessor having a gripper and servo motors for accessing said data storage cartridges, said robot accessor having at least one processor node coupled to said multi-drop bus network for operating said gripper and said servo motors in response to said linked commands.

"Rockwell discloses this limitation ***.

"Accordingly, it would have been obvious" to have the robot gripper "at least one processor node coupled to said multi-drop network ***".

However, Rockwell describes no multi-drop network, and describes no processor node for a robot accessor.

Rather, Rockwell describes a processor 24 for operating the actuator 26 and accessor 20. No other processor is coupled to processor 24 in any way. (See FIG. 2). The other processor in the figure is not coupled to processor 24, and, instead is separate and comprises "a data cartridge processor 14" (column 2, line 52), whose function is described as a separate entity at column 1, lines 15-16. Hence, Applicants respectfully submit that Rockwell also teaches away from Applicants' invention.

Hence, Applicants respectfully submit that, as with respect to Claims 1, 10, 20 and 30, without a multi-drop network and without location or relative location information with respect to a multi-drop network, Ogier is unable to determine the "closest processor node having failed access", and has no interest in doing so, thereby teaching away from Applicants' invention. Rockwell is submitted also teach away from Applicants' invention. Therefore, Applicants' Claims 1, 10, 20 and 30 are submitted to patentably define over Ogier and Rockwell. Specifically, Claim 39 recites "a multi-drop bus network;

"at least one communication processor node for receiving commands, and coupled to said multi-drop bus network to provide a communication link for said commands;

"a robot accessor having a gripper and servo motors for accessing said data storage cartridges, said robot accessor having at least one processor node coupled to said multi-drop bus network for operating said gripper and said servo motors in response to said linked commands;

"each of said processor nodes having information of relative locations of processor nodes on said multi-drop bus network; said processor nodes each independently testing access to other said processor nodes on said multi-drop bus network; upon said access testing by any of said testing processor nodes detecting a

failure to access at least one of said other processor nodes, said failure detecting processor node determining, from said information of relative locations, the processor node having failed access which is closest to said failure detecting processor node; and said failure detecting processor node storing an identification of said closest processor node having failed access."

Therefore, Applicants respectfully submit that Applicants' Claim 39 patentably defines over Ogier and Rockwell under 35 U.S.C. 103(a), and respectfully request allowance thereover.

B) Claims 40-48:

Claims 40-48 are rejected based on Ogier and Rockwell under 35 U.S.C. 103(a) as above, and using language similar to that employed with Claims 2-9, 11-19, 21-29 and 31-38, above.

Accordingly, Applicants refer to the discussion with respect to Claims 2-9, 11-19, 21-29 and 31-38, above, together with the discussion with respect to Claim 39, above, and respectfully request allowance of Claims 40-48.

C) Claim 49:

The Examiner states that Ogier "fails to explicitly state additionally comprising a plurality of interconnected frames ***, at least one of said frames coupling said at least one robot processor node with said multi-drop bus network, at least one of said frames coupling said at least one communication processor node with said multi-drop network ***".

"Rockwell discloses this limitation ***. The additional racks *** are the additional interconnected frames discloses in claim 49.

"Thus, it would have been obvious ***" to have "at least one of said frames coupling said at least one robot access processor node with said multi-drop network, at least one of said frames coupling said at least one communication processor node with said multi-drop bus network ***".

However, as discussed above, neither Ogier nor Rockwell show or suggest a multi-drop network.

Further, Rockwell has only a single processor unconnected to any other processor.

Still further, neither Ogier nor Rockwell are able to determine the "closest processor node having failed access", and neither has interest in doing so, thereby teaching away from Applicants' invention. Therefore, Applicants' Claims 1, 10, 20 and 30 are submitted to patentably define over Ogier and Rockwell.

Specifically, Claim 49 recites "a plurality of interconnected frames, each having a plurality of said storage shelves, at least one of said frames coupling said at least one robot accessor processor node with said multi-drop bus network, at least one of said frames coupling said at least one communication processor node with said multi-drop bus network,

said processor nodes in each of said frame comprising at least one said relative location."

Therefore, Applicants respectfully submit that Applicants' Claim 49 patentably defines over Ogier and Rockwell under 35 U.S.C. 103(a), and respectfully request allowance thereover.

SUMMARY:

Applicants have deleted a typographical error in the specification.

Applicants respectfully submit that the present invention distinguishes over the cited patents and respectfully requests that the Examiner allow Applicants' Claims 1-49 under 35 U.S.C. 102 and 35 U.S.C. 103.

Respectfully submitted,
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Attachment: 2D Declaration under Rule 1.132